

CLAIMS

1. A method for treating waste products and recycling  
5 products of solid organic or inorganic materials or composite materials or mixtures thereof, characterised in that in the composite material or mixture a breaking-up or separation of the components is effected by means of an impulse by a device which  
10 suddenly interrupts the flow of said composite materials or mixture.
2. Method according to Claim 1, characterised in that  
15 process air is fed on a counter-rotating rising flow path (34) into the spiral-shaped downward transport path (32) generated in a rotor (26) having a vertical axis (A).
3. Method according to Claim 2, characterised in that a  
20 shock wave is generated between the layers of the composite material against a deflector wall (20) of the rotor (26).
4. Method according to Claim 2 or 3, characterised in  
25 that two wall faces (22, 22a) arranged coaxially and at a reciprocal radial distance (a) rotate relatively to one another about their axis and the composite materials or mixtures moved by centrifugal forces are moved and broken up between deflector faces (24)  
30 projecting radially from the deflector walls.
5. Method according to any one of claims 1 to 4, characterised in that the composite material (10) is broken up on impact against a deflector wall (20) and

its metal constituents are deformed in a sphere-like manner (Fig. 1).

- 5 6. Method according to Claim 5, characterised in that the layer-like metal component is rolled up during the deformation process (Fig. 2).
- 10 7. Method according to any one of claims 1 to 6, whereby the composite element or mixture is comminuted before the separation or breaking-up process, characterised in that the composite element is reduced to a particle size of 10 mm to 50 mm.
- 15 8. Method according to any one of claims 1 to 7, characterised in that the composite element is subjected to thermal pre-treatment before the separation or breaking-up process.
- 20 9. Method according to any one of claims 1 to 8, characterised in that the material discharged from the separation or breaking-up process is subjected to a separation and/or sifting process.
- 25 10. Method according to Claim 9, characterised in that the material discharged from the separation or breaking-up process is subjected to a process for separating non-ferrous metals.
- 30 11. Method according to Claim 9 or 10, characterised in that separation is carried out on separator tables and/or by fluidised bed separators.
- 35 12. Method according to any one of claims 9 to 11, characterised in that the metal and/or plastics parts are compacted after separation.

13. Method according to any one of claims 1 to 12,  
characterised in that the plastics materials are  
separated from one another by turbo-laminar separation  
and/or identification.
14. Method according to Claim 8 or 9, characterised in  
that the metal and/or plastics constituents are  
extruded after separation.
15. A device for implementing the method according to any  
one of the preceding claims, characterised in that the  
transport path (32) for the composite materials (10)  
or the mixture is directed in the interior (28) of a  
rotor (26) in the opposite direction to the flow path  
(34) of process air.
16. Device according to Claim 15, characterised in that  
the material feed device (30) is arranged in the roof  
area of the rotor (26).
17. Device according to Claim 15 or 16, characterised in  
that the transport path (32) is disposed between two  
relatively movable wall faces (22, 22<sub>a</sub>) spaced apart  
by a distance (a), from which wall faces (22, 22<sub>a</sub>)  
deflector faces (24, 24<sub>a</sub>) project on both sides into  
the transport path and are offset with respect to one  
another.
18. Device according to Claim 17, characterised in that  
the wall faces (22, 22<sub>a</sub>) are curved coaxially.
19. Device according to Claim 17 or 18, characterised in  
that the wall faces (22, 22<sub>a</sub>) are journalled rotatably  
in the direction of rotation ( $y_1$ ) of the rotor (26).